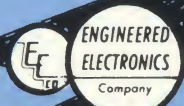


INSTANT LOGIC

...A GUIDE TO PRE-PROVEN DIGITAL CIRCUIT MODULES...

- Basic Advantages of cataloged modules
- Available Types of Modules
- Related Equipment



THE USE OF PRE-PROVEN DIGITAL CIRCUIT MODULES

As electronic systems grew more complex, the practice of wiring all the basic components into a chassis became more difficult. Today, the basic components are organized into plug-in circuit modules which in turn form the basic circuits of a system. This practice offers advantages in general system planning, in trouble shooting during assembly and in future maintenance.

The first circuit modules were specially designed and built for specific systems. Today there are general, "pre-proven" circuit modules that are already designed, built, proven and available for use. The system engineer can base new system designs on established module specifications rather than on the anticipated performance of yet-to-be-proved (or even designed) circuits. These pre-proven, catalog-listed, modules offer you many advantages:

1. When time is important, your systems can be started with the "race half won." You can avoid redundant designing, testing and re-working, of new circuit modules. Unpredicted snags, especially harrowing in the develop-

ment of high frequency modules, are not a threat.

2. **Costs** of pre-proven modules can be determined in advance without the unknown factors of specially produced modules.
3. **Availability** of many different types of digital circuit modules from a module specialist, such as Engineered Electronics Company, offers you refined selection of pre-proven modules for the requirements of each specific application.
4. **Replacement** modules can be simply ordered and you will not have to re-establish a costly production of a few odd, or special modules at inopportune times in the future.
5. You will not have to increase company manpower as drastically to meet **temporary peaks** in system sales.
6. Your team can concentrate on producing a **greater** volume of complete projects.
7. You can offer your customers the advantages of EECO's sweeping "lifetime" **guarantee** of its pre-proven catalog modules.

AVAILABLE DIGITAL CIRCUIT MODULES AND RELATED EQUIPMENT

EECO MODULE SERIES:	R	N	UC	U	G	CT	T
PACKAGE: Printed Circuit Cards.....	—	●	—	—	—	—	—
Metal Enclosure.....	—	—	—	—	—	—	—
Molded Block.....	—	—	—	—	—	—	—
FREQUENCIES: To 100 Kc.....	—	—	—	—	—	—	—
To 250 Kc.....	—	—	—	—	—	—	—
To 1 Mc.....	—	—	—	—	—	—	—
To 10 Mc.....	—	—	—	—	—	—	—
CIRCUITS: Amplifiers.....	NA	NA	NA	NA	NA	NA	NA
Arithmetic.....	NA	NA	NA	NA	NA	NA	NA
Drivers/Emitter Followers.....	NA	NA	NA	NA	NA	NA	NA
Flip-Flops.....	NA	NA	NA	NA	NA	NA	NA
Inverters.....	NA	NA	NA	NA	NA	NA	NA
Level Converters.....	NA	NA	NA	NA	NA	NA	NA
Logic: AND/OR.....	NA	NA	NA	NA	NA	NA	NA
NAND/NOR.....	NA	NA	NA	NA	NA	NA	NA
Universal.....	NA	NA	NA	NA	NA	NA	NA
Multivibrators ■.....	NA	NA	NA	NA	NA	NA	NA
Decade Counters.....	NA	NA	NA	NA	NA	NA	NA
Indicator Lights.....	NA	NA	NA	NA	NA	NA	NA
TRANSISTORS: Germanium.....	—	—	—	—	—	—	—
Silicon.....	—	—	—	—	—	—	—
SIGNAL VOLTAGE: "True".....	—	—	—	—	—	—	—
"False".....	—	—	—	—	—	—	—
POWER REQUIREMENTS: —12V.....	—	—	—	—	—	—	—
+12V.....	—	—	—	—	—	—	—
—6V.....	—	—	—	—	—	—	—
+6V.....	—	—	—	—	—	—	—
OPERATING TEMPERATURE RANGE: —20°C / +50°C.....	—	—	—	—	—	—	—
—45°C / +65°C.....	—	—	—	—	—	—	—
—54°C / +71°C.....	—	—	—	—	—	—	—
—55°C / +125°C.....	—	—	—	—	—	—	—
RELATED: Power Supplies.....	—	—	—	—	—	—	—
System Bread Boards.....	—	—	—	—	—	—	—
Panels/Chassis.....	—	—	—	—	—	—	—
Drawers/Files.....	—	—	—	—	—	—	—
Timing Sources.....	—	—	—	—	—	—	—
Connectors/Sockets.....	—	—	—	—	—	—	—

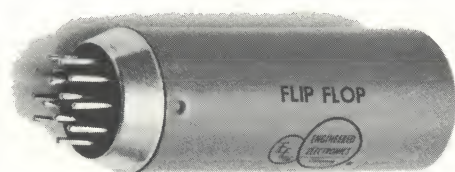
□ Models are available for use with all common system signal levels, power supplies and operating temperature ranges.

★ U-Series modules mount on printed circuit cards.

■ One shot and free running.

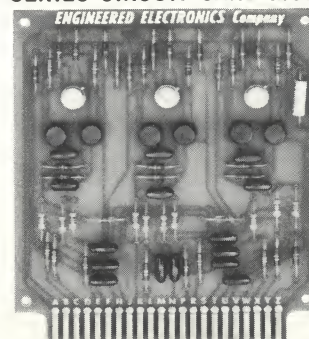
AVAILABLE TYPES of DIGITAL CIRCUIT MODULES

GERMANIUM TRANSISTOR PLUG-IN MODULES (T-SERIES)

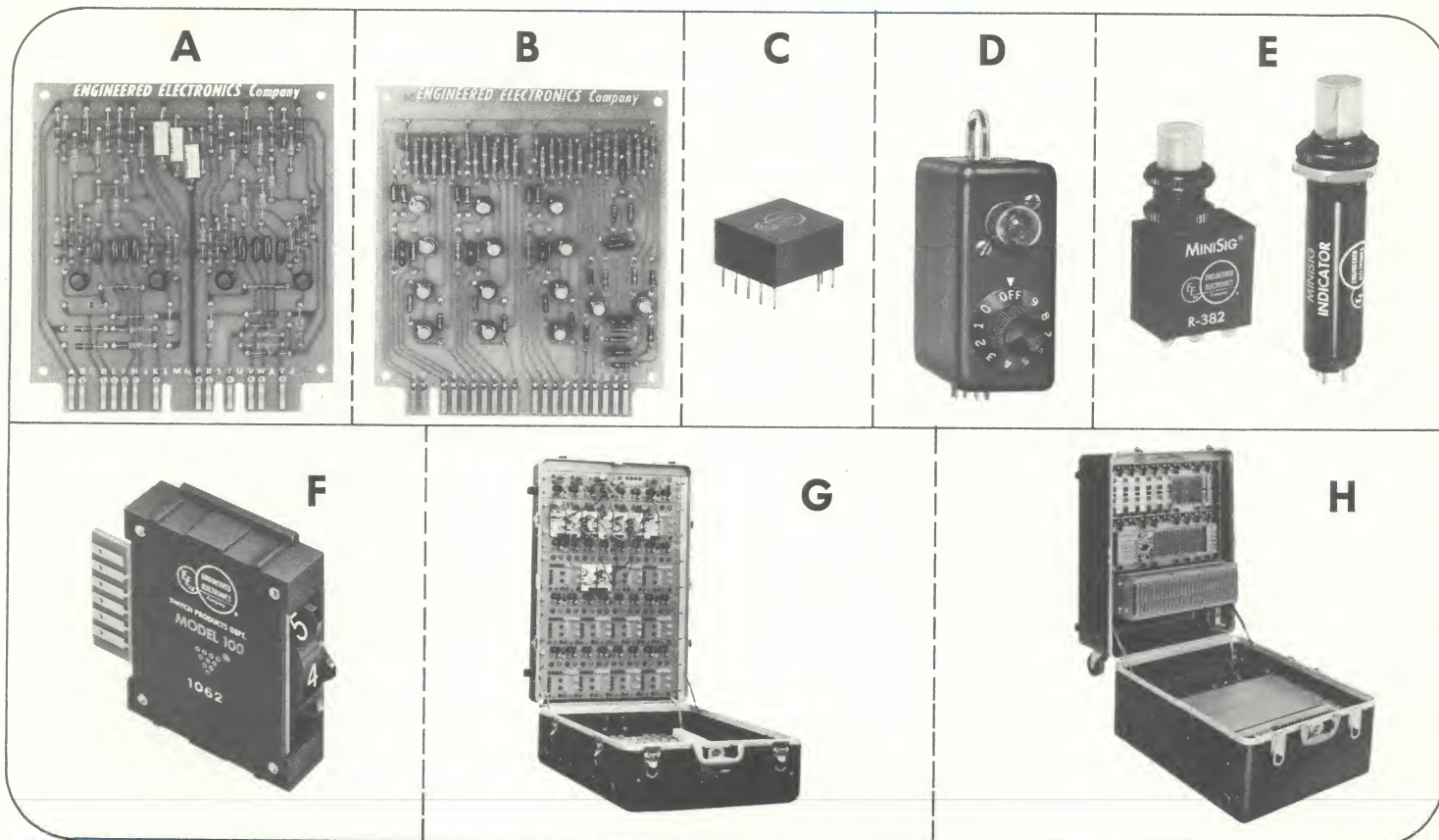


Over 150 different circuits are available in this direct "building-block" module series. They have been well proven in a very wide range of applications, both military and industrial. The basic module is a 2.22" x 0.906" cylinder that plugs into a standard socket. In addition to the cataloged configuration, the T-Series is available in potted, military-component and other special forms. A life test system composed of over 1000 T-Series modules has run continuously, day and night, for over three years with but a single module failure.

CT-SERIES CIRCUIT CARD MODULES



These are printed circuit card versions of the well proven T-Series circuits. They offer you an economical solution for many applications when the integrity of container-enclosed circuits is not required. The 4.5" x 5" cards are wired with 2-mil copper bonded to the epoxy card.



A Germanium Transistor Printed Circuit Card Modules (G-Series)

These are high quality germanium transistor circuits mounted on 4.5" x 5" glass epoxy cards that are fitted with Varicon connector pins. The G-Series' most unusual feature is a new "universal-type" diode logic board. By jumpering output pins, almost any AND/OR type function can be mechanized by one of the few types of logic cards. This approach reduces the number of small logic circuits that you would normally require for the same function. It also offers you more efficient and more economical solutions to many system problems. The different frequency groups, 10 Mpps, 1 Mpps, and 100 Kpps, can be employed in the same system for added economy.

B NOR/NAND Circuit Cards (UC-Series)

These are silicon-transistor circuits mounted on 4.5" x 5" glass-epoxy, etched circuit cards. The basic circuit in this family is the NOR (Not-OR). By reversing the logic level assignments for "true" and "false," the NOR circuits function as NAND circuits. These modules features restored logic levels and compatible standardized loading. This greatly reduces the adjustment or re-working time in prototyping a system. System segments can be added, altered or deleted without throwing adjoining segments out of balance. A minimum number of circuit types are required and there are only nine cards in each of the two frequency groups...0 to 1 Mc. and 0 to 10 Mc. If you have not considered the NOR design advantages, be sure to send for the U-Series catalog which covers the U and UC module families.

C NOR/NAND Transfer Molded Modules (U-Series)

Two frequency groups totalling only nine modules comprise this amazing family. These are all-welded circuits in transfer-molded 0.950" x 0.950" x 0.450" blocks. The modules are designed for easy mounting (dip-soldering) on printed circuit cards. This approach requires fewer total connector-pin contacts per assembly, and improves reliability accordingly. Beside the NOR/NAND advantages given in the UC-Series description, the U-Series has the advantage of the very few required circuit types, with resulting better discount price allowances as well as easier handling and stock control. This family has 0 to 1 Mc and 0 to 10 Mc frequency capabilities.

D N-Series Decade Counters

There are 38 models in this family including decade counters in 1.31" x 3.12" x 3.44" metal cased, plug-in containers, decade

counters on 4.5" x 5" circuit cards, storage registers, nixie drivers, and incandescent displays.

E R-Series Minisig® Indicators

These transistor-driven indicators are used to show "true" or "false" levels of digital flip-flops and storage elements without placing excessive load on the flip-flops or storage elements. There are two types of Minisig packages...rectangular and cylindrical. A wide variety of incandescent, neon, and thyratron models are available to satisfy specific system requirements.

F ROTARY THUMBWHEEL SWITCH MODELS

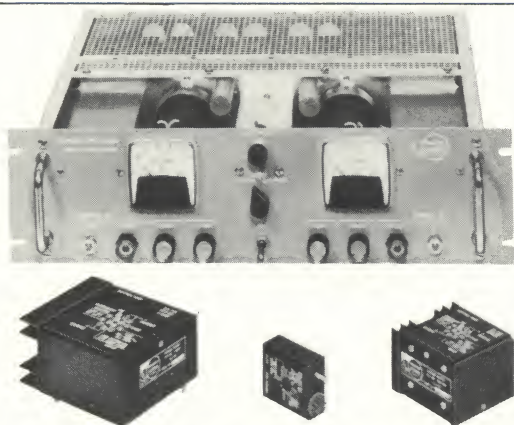
Manually operated rotary thumbwheel switches combine direct readout with coded electrical outputs. Advantages of this type of switch include reduced behind-panel space and more compact, quickly-read panel display. Switches are available singly and in horizontal assemblies. There are sealed, lighted, and miniature models in this module family with a choice of connector plug-in or solder-wire type of module terminations. There are many output codes available including BCD, 1-2-2-4, Teletype, decimal, biquinary, etc., with optional parity or complementary outputs and provision for diodes.

System Breadboards (H-Series)

G T-Series system breadboards are used to rapidly develop and test assemblies of T-Series modules. They are available in suitcase enclosed and rack-mounted models. Both types have built-in power supplies and transistorized indicator lights. Rack-mounted models can be worked in combination to breadboard a complete system. The suitcase models can demonstrate portions of a system and are used extensively in classroom training.

H High-Speed System Breadboards are used to develop and test assemblies of printed circuit card modules such as the G-Series. Assemblies can be tested for operating frequencies up to 10 Mpps with stop-action control permitting detailed examination of the logic flow. Small assemblies are usually made with the circuit cards separated enough to permit the use of visual symbol cards. Proved portions can be compressed to normal card-file density to permit inclusion of large assemblies in the breadboard tests.

OTHER RELATED HARDWARE

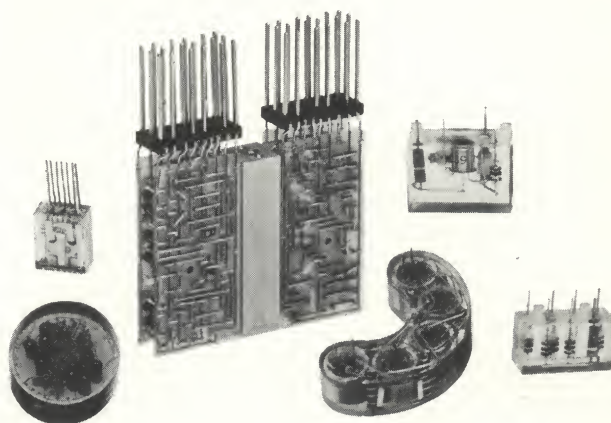


Transistorized Power Supplies (ZA-Series)

This family of 6 and 12 volt power supplies features low output impedance and excellent regulation. There are models specially recommended for each of EECO's digital circuit module families. Output capabilities range from 100 milliamperes to 6 amperes.

As a service to its module customers, EECO makes available a large line of related hardware including panels, chassis, drawers, card files, sockets and connectors.

SPECIAL AND CUSTOM WELDED CIRCUITS

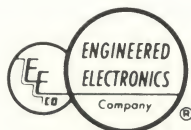
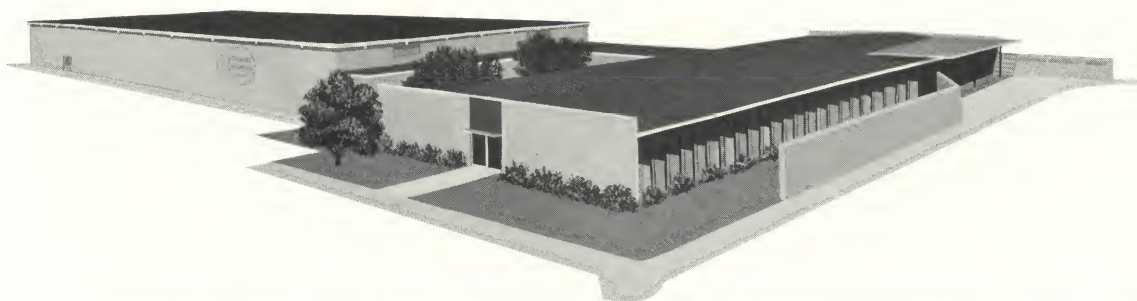


Many companies use EECO's module producing capabilities for the production of modules of their own design. We also design and produce special modules to meet the requirements of specific programs. We have complete welded circuit facilities, packaging engineers, a metallographic lab, a plastic chemistry lab and a staff of electronic engineers to help meet your program's requirements.

A WORD ABOUT THE ENGINEERED ELECTRONICS COMPANY

Engineered Electronics Company is one of two autonomous EECO Divisions. It grew from EECO's early pioneering in digital circuit module development. Since its first vacuum-tube operated modules, quality control and continuous technical development have held top priorities in company policy. Today it is housed in a specially designed plant in Santa Ana, California. Facilities include a bonded stockroom for

Jan-Mil parts. Quality assurance testing is performed on a 100% basis with quality assurance approved and under the cognizance of the U.S. Signal Corps. Accounting is under the audit of a U.S. Navy Area Audit office. EECO has direct factory offices or representatives to service all major electronic centers in the U.S. and abroad.



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